GUJARAT TECHNOLOGICAL UNIVERSITY

Wireless Communications Networks and Systems (EC)

M.E. Semester: II

Subject Name: **Introduction to Artificial Intelligence (Interdisciplinary Elective – II)**

Sr. No.	Course Content
1.	Introduction, problem characteristics, issues in design of search algorithms.
2.	**Searching:** Uninformed search techniques, alterative deepening. Heuristics search techniques, Constraint Satisfaction; Means Ends Analysis; Alternative search techniques, Evolutionary search techniques-working of Genetic Algorithm and simulated annealing
3.	**Game-playing:** Single player game, Two player game, The Minmax procedure, Minmax Procedure with alpha-beta cutoffs, Quiescent search, search efficiency
4.	**Knowledge representation:** The propositional Calculus - resolution in propositional calculus, entailment, PSAT problem, The Predicate calculus - resolution in predicate calculus, quantification, unification, horn clauses.
5.	**Expert System:** Introduction, knowledge representation in ES, reasoning with uncertain information, Bayes network, D-separation, probabilistic interfacing, inexact reasoning, representing common sense knowledge, non-monotonic and monotonic reasoning, forward and backward chaining.
6.	Introduction to ANN, feed forward and feedback networks, perceptions linearly separable and non-separable problems, supervised and unsupervised learning, back propagation algorithm, introduction to fuzzy logic and fuzzy sets, membership fuction, defuzzification methods, fuzzy arithmetic.

Reference Books:

1. Nils J Nilson, Artificial intelligence: A new synthesis, Morgan Kaufmann Publishers.
2. E Rich and K Knight, Artificial intelligence, Tata MacGraw Hill Publishing
3. Giarratano and Tiley, Expert Systems - Principal and programming, Thomson Publishing.